NATURAL RESOURCES CONSERVATION SERVICE
CONSERVATION PRACTICE STANDARD

SEDIMENT BASIN

(No.)
CODE 350

DEFINITION

A basin constructed to collect and store debris or sediment.

PURPOSE

To preserve the capacity of reservoirs, ditches, canals, diversion, waterways, and streams; to prevent undesirable deposition on bottom lands and developed areas; to trap sediment originating from construction sites; and to reduce or abate pollution by providing basins for deposition and storage of silt, sand, gravel, stone, agricultural wastes, and other detritus.

CONDITIONS WHERE PRACTICE APPLIES

This practice applies where physical conditions or land ownership preclude treatment of a sediment source by the installation of erosion-control measures to keep soil and other material in place or where a sediment basin offers the most practical solution to the problem.

CRITERIA

The capacity of the sediment basin shall equal the volume of sediment expected to be trapped at the site during the planned useful life of the basin or the improvements it is designed to protect. If it is determined that periodic removal of sediment will be practicable, the capacity may be proportionately reduced.

The design of dams, spillways, and drainage facilities shall be according to NRCS standards for ponds (378) and grade stabilization structures (410) or according to the requirements in TR-60, as appropriate for the class and kind of structure being considered.

Temporary basins having drainage areas of 5 acres or less and a total embankment height of 5 ft or less may be designed with less conservative criteria, if conditions warrant.

The embankment shall have a minimum top width of 4 ft and side sloped of 2:1 or flatter. An outlet shall be provided of earth, pipe, stone, or other devices adequate to keep the sediment in the trap and to handle the 10-year-frequency discharge without failure or significant erosion.

Provisions shall be made for draining sediment pools, if necessary for safety and vector control. Fencing and other safety measures shall be installed as necessary to protect the public from floodwater and soft sediment. Due consideration shall be given to good visual resource management.

All waste storage facilities for less than 1,000 animal units are subject to the Memorandum of Understanding between the Natural Resources Conservation Service, United States Department of Agriculture and the Wyoming Department of Environmental Quality for Agricultural Waste Management System Review. All waste storage facilities for greater than 1000 animal units shall be designed in accordance with the following Wyoming Department of Environmental Quality Rules and Regulations.

The Wyoming Department of Environmental Quality/Water Quality Division regulations related to sediment basins are contained in Section 29(b)(iii), Chapter XI, Wyoming Water Quality rules and Regulations.

The surface area of the sediment basin shall be sized to reduce the flow velocity below one foot per second to allow settling of solids. The sediment basin shall be between three to six feet deep to allow sufficient capacity for holding the solids and yet allow easy removal of the solids.

A Wyoming Department of Environmental Quality/Water Quality Division construction permit is required for sediment basins that are components of a waste management system.

CONSIDERATIONS

Water Quantity

1. Effects on the water budget, especially on volumes and rates of runoff, infiltration, evaporation, transpiration, deep percolation, and groundwater recharge.
2. Effects on downstream flows and aquifers that would affect other water uses and users.
3. Effects on volume of discharge flow on the environmental, social, and economic conditions.
4. Effects on the water table downstream and the results of changes of vegetative growth.

Water Quality

1. Effects on erosion, movement of sediment, pathogens, and soluble and sediment-attached substances that could be carried by runoff.
2. Effects on the visual quality of on-site and downstream water resources.
3. Effects of construction and early establishment of protective vegetation on the surface and ground water.
4. Effects on wetlands and water-related wildlife habitats.

PLANS AND SPECIFICATIONS

Plans and specifications for installing sediment basins shall be in keeping with this standard and shall describe the requirements for applying the practice to achieve its intended purpose.

OPERATION AND MAINTENANCE

An operation and maintenance plan must be prepared for use by the owner or others responsible for operating the system. The plan should provide specific instructions for operating and maintaining the system to insure that it functions properly. The plan should also provide for periodic inspections and prompt repair damaged components.

The sediment basin shall be cleaned periodically to maintain the capacity.